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XVIII.

PRELIMINARY COMMUNICATION ON THE HOST OF NECTONEMA AGILE, VERR.

By Henry B. Ward.

Presented by E. L. Mark, November 9, 1892.

In a paper on Nectonema agile, published last June,* I endeavored to show, from purely morphological evidence, that, although known only as a free-swimming adult, this worm must be parasitic in early life. I suggested further some small fish or crustacean (Palæmonetes) as its probable host. Last October Prof. J. P. McMurrich ‡ very kindly sent me a nematode with the following description: "I obtained last summer from a Palæmonetes this nematode lying curled up in the thoracic cavity. In general form it suggests Nectonema, but lacks the lateral bands of setæ so characteristic of the free-swimming form; the parasitic habit may account for that."

The alcoholic specimen, which was in two pieces when received, measured 75 mm. in length, and 0.5 mm. in diameter, being thus longer than any adult female Nectonema hitherto reported, and surpassing even the avarage male (68 mm.) in length, so that if this parasitic worm is Nectonema, the difference in size between the sexes appears less evident than was stated in the paper cited. Externally this parasite exactly resembles the adult female Nectonema in all respects except in the entire absence of the rows of hairs which are found on the cuticula of the median lines of the latter. Cross sections show conclusively that it is a female Nectonema in approximately the same stage of development as that represented in Figure 58 (Plate IV.) of the paper already referred to. The thin body wall encloses a crowded mass of nearly developed eggs, which indicate that this specimen is quite as mature as those captured free swimming. The cuticula is clearly divided into two layers, a superficial broken stratum, of a brownish hue, and variable in thickness, which is separated by a sharp line from the underlying homogeneous bluish layer. The latter is uniform in thickness and regular in outline. These two layers are slightly separated at the median lines, and between them may be seen shreds of cuticular substance, which, to judge from tangential sections, lie in rows, and are apparently attached to the deeper layer; they are probably the hairs of the adult. From these appearances I feel justified in concluding that the outer layer is the last larval cuticula, which is ready to be cast when the nematode leaves its host, and the deeper layer is the permanent cuticula of the adult, which already bears the characteristic hairs. Since this specimen was practically as far developed as the youngest free form described in the previous paper, it was probably nearly ready to desert its host, and therefore furnishes no new evidence as to the structure of the female.

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‡ I desire to return my sincere thanks to Prof. McMurrich for his kindness in sending me this specimen.

The discovery of this individual seems to establish beyond question the parasitic nature of the young Nectonema, and indicates Palæmonetes as its host. On the analogy of Gordius there is some reason for supposing that Nectonema may have facultative hosts, and it may even be that Palæmonetes is only an occasional host; yet that it is normally one can scarcely be doubted in view of the maturity and perfect development of this specimen. Further, it is more probable that the development is completed in a single host than that a change of hosts occurs, and, in spite of the scarcity of the parasite, one may confidently expect, now that the attention of investigators has been directed to this host, that all stages of the development will be obtained.

The results obtained from the study of a single specimen are necessarily incomplete, and are presented in order to call attention to the host, in the hope that more material may be obtained, and also to establish the position taken in my previous paper as to the parasitic nature of the immature Nectonema. I expect to search next summer for additional material on the development, and shall be deeply indebted for any further information as to the occurrence of this nematode or its host.

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